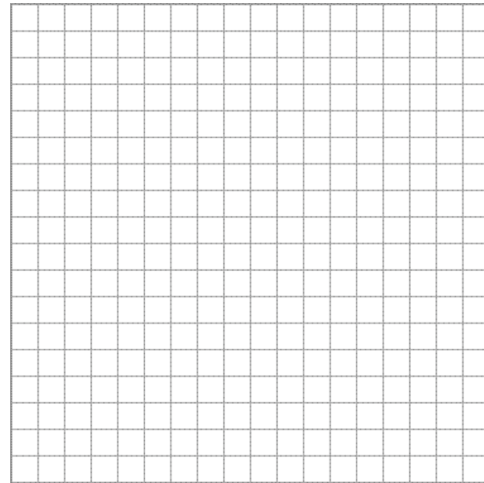


5-10: Linear Programming II

Warm-up: Graph the system and find the vertices.

$$\begin{cases} 12x + 18y \leq 72 \\ 10x + 6y \leq 30 \\ x \geq 0 \\ y \geq 0 \end{cases}$$



Steps for solving linear programming problems from scratch:

1.

2.

3.

4.

5.

6.

By using these steps, we can solve any linear programming with these steps. However, they do take up a lot of time. And we have been using these ideas all throughout this chapter. Now, it's time to speed up this process!

Example 1: Use INEQUALZ to graph the feasible set and find the vertices.

$$\begin{cases} 12x + 18y \leq 72 \\ 10x + 6y \leq 30 \\ x \geq 0 \\ y \geq 0 \end{cases}$$

How to use the Inequality Graphing (INEQUALZ) application on your TI-84

1. Press **APPS** on your calculator. Scroll down to **INEQUALZ** and press **ENTER**. This brings up a title screen for the app. Press **ENTER**.
2. This takes you to the **Y=** screen. You will notice that when you move the cursor over an equal sign, you get a menu of inequality signs for use in graphing. To choose the signs, press **ALPHA** then:
 - a. **F2** for $<$
 - b. **F3** for \leq
 - c. **F4** for $>$
 - d. **F5** for \geq
 - e. **F1** to revert back to $=$
3. Enter the rest of your inequality as you would for an equation. Make sure you inequality is in "slope-intercept" form.
4. If you need to put in a vertical boundary line, you need to arrow up to the top until **X=** is highlighted. Press **ENTER** to access the **X=** menu.
5. Once all of your inequalities are entered, press **GRAPH** to graph your inequalities. You may need to adjust your window by pressing **WINDOW** to access the menu.
6. To graph just the feasible set, press **ALPHA** then **F1** while in the graph screen. This brings up a new menu. Go to **1: Ineq Intersection** and press **ENTER** to graph just the feasible set.
7. **PoI-Trace** is used to find the vertices. Press **ALPHA** then **F3** to access this function. Use the up and right arrow buttons to move from vertex to vertex.

Homework:

"It's not that I'm so smart, it's just that I stay with problems longer." –
Albert Einstein